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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/021,753 | 10/30/2001 | Ken Fujise | UTSH:251US | 6306 |

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| EXAMINER |
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ANGELL, JON E

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| ART UNIT | PAPER NUMBER |
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1635

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| MAIL DATE | DELIVERY MODE |
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04/07/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/021,753 | FUJISE ET AL. | |
| | Examiner | Art Unit | |
| | J. E. Angell | 1635 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 December 2008.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 39,40,46,47,63,64,66,68,79-83,88 and 93-101 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 68,79-83 and 88 is/are allowed.
- 6) Claim(s) 39,40,46,47,63,64,66 and 93-101 is/are rejected.
- 7) Claim(s) 46 and 47 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/18/2008 has been entered.

2. Applicant's arguments are addressed on a per section basis. The text of those sections of Title 35, U.S. Code not included in this Action can be found in a prior Office Action. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims and/or applicant's arguments.

3. Claims 39, 40, 46, 47, 63, 64, 66, 68, 79-83, 88, 93-101 currently pending and are examined herein.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 39, 40, 63, 64, 66 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the claimed method wherein the "Fortilin binding activity" is specifically Fortilin-p53 binding activity or Fortiling-MCL1

binding activity, does not reasonably provide enablement for the full scope encompassed by the claims, which broadly encompasses “Fortilin binding activity) (i.e., Fortilin binding with anything). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 8 USPQ2d 1400 (CA FC 1988).

Wands states on page 1404,

“Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in *Ex parte Forman*. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.”

The invention is in a class of invention which the CAFC has characterized as “the unpredictable arts such as chemistry and biology.” *Mycogen Plant Sci., Inc. v. Monsanto Co.*, 243 F.3d 1316, 1330 (Fed. Cir. 2001).

The claims encompass methods which require assaying Fortilin binding activity either. As such, the claims encompass methods that require assaying a genus of Fortilin activities wherein the genus encompass all possible Fortilin binding activities, a genus of binding activities that could encompass a number of different binding activities including ones that have not yet been identified.

The specification only describes Fortilin binding to p53 polypeptide and Fortilin binding to MCL1 polypeptide as the only binding activities Fortilin. The specification also discloses that Fortilin is involved in prevention of apoptosis via p53 and MCL1 binding. The specification does not describe any other Fortilin binding activity encompassed by the claims, and none are found in the prior art. Therefore, additional experimentation would be required in order to practice the claimed methods to their full scope. That is, additional experimentation would be required in order to identify the Fortilin binding activities in addition to the disclosed binding activities which could be assayed. The additional experimentation amounts to trial-and-error testing of potential Fortilin binding activities without guarantee of success. Furthermore, the identification of any other Fortilin binding activity would amount to a significant and unobvious advancement of the state of the art. Therefore, the additional amount of experimentation required to practice the claimed methods to their full scope is considered to be undue.

6. Claims 93-101 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

37 CFR 1.118 (a) states that "No amendment shall introduce new matter into the disclosure of an application after the filing date of the application".

MPEP §2163 indicates:

If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. In re Rasmussen, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).

MPEP §2163.02 teaches that:

Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application.

MPEP §2163.06 further notes:

When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not "new matter" is involved. Applicant should therefore specifically point out the support for any amendments made to the disclosure. (Emphasis added).

The claims encompass:

A method of identifying a modulator of a Fortilin polypeptide comprising:
contacting a candidate modulator with isolated, recombinant cells expressing a Fortilin polypeptide comprising the amino acid sequence of SEQ ID NO:2;
measuring the level of Fortilin expression of the cell; and, comparing the level of Fortilin expression of the cells to the level of Fortilin expression of cells not contacted with the candidate modulator, wherein a difference between the level of Fortilin expression indicates that the candidate modulator is a modulator of a Fortilin polypeptide; wherein the level of Fortilin polypeptide, mRNA, or half-life is measured; wherein the candidate substance is a polypeptide, antibody, small molecule, or a nucleic acid which comprises at least 20 contiguous nucleotides identical or complementary to SEQ ID NO: 1.

Applicants have stated that support for the amendment can be found in the specification at pages 166-169, and originally filed claims 39-47. The disclosure has been thoroughly searched, including the cited pages and claims, and support for the instant claimed method could not be found. That is, support could not be found for a the claimed method of identifying a modulator of a Fortilin polypeptide wherein the level of Fortilin expression of a cell is measured in response to application of a candidate modulator that could be an antibody, a nucleic acid, or a small molecule. Should

Applicants traverse, they are asked to provide the specific page and line number(s) of the disclosure where support can be found.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 93-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 94/12881 (Hochstrasser et al.; previously of record) in view of U.S. 5,948,639 (Gimeno et al.) and U.S. 6,228586 (Messier et al.).

As indicated above, the instant claims encompass:

A method of identifying a modulator of a Fortilin polypeptide comprising:
contacting a candidate modulator with isolated, recombinant cells expressing a Fortilin polypeptide comprising the amino acid sequence of SEQ ID NO:2;
measuring the level of Fortilin expression of the cell; and, comparing the level of

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Fortilin expression of the cells to the level of Fortilin expression of cells not contacted with the candidate modulator, wherein a difference between the level of Fortilin expression indicates that the candidate modulator is a modulator of a Fortilin polypeptide; wherein the level of Fortilin polypeptide, mRNA, or half-life is measured; wherein the candidate substance is a polypeptide, antibody, small molecule, or a nucleic acid which comprises at least 20 contiguous nucleotides identical or complementary to SEQ ID NO: 1.

10. Hochstrasser teaches the identification of tumor protein p21 (TCTPp21), including the polypeptide sequence (SEQ ID NO: 2) and the nucleotide sequence encoding TCTPp21 (SEQ ID NO: 1). Hochstrasser teaches that TCTPp21 can be used as a marker for growing cells, including cancer cells, but Hochstrasser does not teach any particular function for TCTPp21 (e.g., see abstract). The TCTPp21 sequence is identical to the Fortilin polypeptide of the instant claims:

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Query Match          100.0%; Score 898; DB 2; Length 172;
Best Local Similarity 100.0%; Pred. No. 8.3e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy      1 MIIYRDLISHDEMFS DIYKIREIADGLC LEVECKM VS RTEG NIDS LIGGN ASAEG PEGE 60
        ||||||| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      1 MIIYRDLISHDEMFS DIYKIREIADGLC LEVECKM VS RTEG NIDS LIGGN ASAEG PEGE 60

Qy      61 GTESTVITGV DIVVMNHHLQETSFTKEAYKKYIKD YMKS IKGKLEEQR PERV KPF MTGAAE 120
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Db      61 GTESTVITGV DIVVMNHHLQETSFTKEAYKKYIKD YMKS IKGKLEEQR PERV KPF MTGAAE 120

Qy      121 QIKHILANFKNYQQFFI GENNM P DGD MVALL DYRED GVT PYM I FFKD GLMEK C 172
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Db      121 QIKHILANFKNYQQFFI GENNM P DGD MVALL DYRED GVT PYM I FFKD GLMEK C 172

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Hochstrasser does not teach a method for identifying candidate modulators of TCTPp21 (Fortilin) wherein the candidate modulators are Antibodies, antisense nucleic acid sequence, or small molecules; wherein TCTPp21 (Fortilin) expression is measured by measuring the level of the TCTPp21 (Fortilin) polypeptide, mRNA or half-life.

However, methods of identifying candidate modulators of a known polypeptide where known in the art. For example, Gimeno et al. teaches a method of identifying modulators of EMI1 expression by contacting a cell that expresses the EMI1 polypeptide with a candidate compound that can be an antibody, antisense or small molecule and

measuring the effect of the molecule on the expression of EMI1 mRNA or protein (e.g., see paragraph bridging columns 37-38). Furthermore, Messier teaches a method of identifying modulators of expression by contacting a cell that expresses a protein of interest with a candidate compound measuring the effect of the compound on the protein's half-life (e.g., see column 25, lines 24-37).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Hochstrasser, Geminò and Messier to create the claimed method with a reasonable expectation of success.

Allowable Subject Matter

11. Claims 68, 79-83, 88 are allowed.
12. Claims 46 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. E. Angell whose telephone number is 571-272-0756.

The examiner can normally be reached on Monday-Thursday 7:00 a.m.-5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Douglas Schultz can be reached on 571-272-0763. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. E. Angell/
Primary Examiner, Art Unit 1635